



CLAIMS ANNOTED TO LIST ELEMENTS

1. An infusion device (10, 110) for delivering a quantity of fluid into a living body at substantially constant flow-rate, comprising:

a variable volume storage chamber (20, 120) for holding the fluid, said storage chamber (20, 120) including means (50, 150) for allowing fluid to be added to the storage chamber,

a pressurizing means for the storage chamber (23, 123), said pressurizing means maintaining the pressure within the storage chamber (20, 120) above a preselected outflow pressure,

an outflow chamber (30, 130) for receiving fluid from the storage chamber (20, 120), said outflow chamber (30, 130) including means (40, 140) to maintain fluid in said outflow chamber at the preselected outflow pressure, said outflow chamber (30, 130) including means (12, 112) for attachment thereto of a flow restrictor means (60, 160) through which fluid in the outflow chamber (30, 130) is delivered to a patient, and

a regulator means (40, 140) located between the storage chamber (20, 120) and the outflow chamber (30, 130), said regulator means functioning to maintain the pressure in the outflow chamber (30, 130) at the preselected outflow pressure while allowing fluid to be transferred from the storage chamber (20, 120) to the outflow chamber (30, 130).

2. The infusion device of claim 1 wherein said regulator means comprises:

a valve means (40, 140) attached to a flexible diaphragm such that the pressure of the fluid in the outflow chamber acts on the diaphragm (32, 132) to close the valve means (40, 140) to prevent flow of fluid from the storage chamber (20, 120) to the outflow chamber (30, 130) when the pressure in the outflow chamber (30, 130) is elevated to the preselected outflow pressure, and

a force applying means (23, 123) attached to the flexible diaphragm (32, 132) such that the force applied acts to open the valve means when the pressure in the outflow chamber (30, 130) is less than the preselected outflow pressure, thereby allowing fluid in the storage chamber (20, 120) to enter the outflow chamber (30, 130)

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and the pressure in the outflow chamber (30, 130) to be held at a substantially constant preselected outflow pressure.

3. The infusion device of claim 2 wherein the force applying means is a spring (23, 33), pneumatic device, or compressed elastomeric material (123, 133).
4. The infusion device of claim 1 wherein the preselected outflow pressure ranges from about 1 psi to about 10 psi with an accuracy of $\pm 5\%$.
5. The infusion device of claim 1 wherein the storage chamber has a volume ranging from 50 ml to 500 ml and the outflow chamber has volume ranging from 2 ml to 10 ml.
6. The infusion device of claim 1 wherein the pressurizing means for the storage chamber (23, 123) comprises an elastomeric bladder, springs, or a pneumatic system.
7. The infusion device of claim 1 wherein the storage chamber comprises multiple bladders (123).
8. An infusion device for delivering a quantity of fluid into a living body at substantially constant flow-rate, comprising:
 - a first chamber (20, 120) for storing a volume of the fluid,
 - a second chamber (30, 130) operatively attached to the first chamber (20, 120) for receiving fluid from the first chamber (20, 120),
 - a regulator means (40, 140) located between the first chamber (20, 120) and the second chamber (30, 130), said regulator means (40, 140) functioning to maintain the pressure in the second chamber (30, 130) at a preselected outflow pressure while allowing fluid to be transferred from the first chamber (20, 120) to the second chamber (30, 130), a pressurizing means (23, 123) for maintaining the pressure within the first chamber above the preselected outflow pressure,
 - said first chamber (20, 120) including fluid input means (50, 150) and said second chamber (30, 130) including means for attachment (12, 112) thereto of a fluid delivery tube (70, 170), said fluid delivery tube (70, 170) including flow restrictor means (60, 160) through which fluid in the second chamber (30, 130) is delivered to a patient.
9. The infusion device of claim 8 wherein the first chamber comprises multiple storage containers (123).